

de vouloir bien vous y trouver pour procéder à la mise en train des expériences en litige.

Veuillez agréer, Monsieur, l'expression de mes sentiments les plus distingués.

PH. VAN TIEGHEM,
Membre de la Commission

I made all the necessary arrangements that afternoon in M. Pasteur's laboratory for the performance of my experiments, and the next morning at eight o'clock M. Pasteur and I were at the appointed place. M. van Tieghem was also there, and shortly afterwards M. Milne Edwards arrived. He apparently had had no communication with M. Dumas since the time of my interview, and when told, in reply to a question of his, of the proposition which I had made to M. Dumas, M. Milne Edwards very hastily expressed his disapproval of it, and at once, without listening further, left the laboratory. He was followed by M. van Tieghem. I remained, and after one hour M. van Tieghem returned. He informed me that, having waited in vain for the arrival of M. Dumas, M. Milne Edwards had at length gone away.

I remained in conversation with M. van Tieghem for nearly an hour in an upper room of M. Pasteur's laboratory. When we came down, much to my surprise, we learned from M. Pasteur that M. Dumas had arrived, that he had been told of the departure of M. Milne Edwards, and that he also had then left, saying that the Commission was at an end—but without in any way communicating either with his colleague, M. van Tieghem, or with myself.

Thus began and ended the proceedings of this remarkable Commission of the French Academy.

July 30

H. CHARLTON BASTIAN

NOTES

FROM correspondence which we have received, we gather, that because we omitted to state in our leading article of last week the fact that London is the only University which treats science as a necessary branch of education, that article has been thought hostile to the University of London. The fact in question is of course well known and appreciated, but it did not seem to us to be relevant. Our article had reference to the question of Universities as against Examining Boards rather than to the quality of the examinations. We heartily acknowledge the good the London Examining Board has done, and the obligations under which it has placed science and scientific men.

THE Annual Conference of the Royal Archaeological Institute of Great Britain and Ireland commences, on the 7th proximo, at Hereford, for a week. The Bishop of Hereford is president.

AN important resolution of the International Geodetic Congress is now being carried out. The Montsouris observatory is being connected by telegraphic observations with Bonn and Berlin in Germany, and with Geneva and Neufchâtel in Switzerland. Two astronomers from Berlin having arrived in Paris, and M. Loewy, member of the French Academy of Sciences, with two assistants, having arrived in Berlin from Paris, the work has been at once proceeded with. The wires are freed a few hours every night for obtaining comparisons. The connection with Geneva and Neufchâtel is executed, *via* Lyons, by Commander Perrier, of the staff, and the operations have been continued to Marseilles and Algiers. The comparison between the Montsouris and Paris observatories will be a work of triangulation, the two establishments being about a gun-shot from each other.

A NUMBER of Abyssinians have arrived in Paris on their way to London. They are encamped in the Acclimatisation Gardens (Bois de Boulogne), with camels, elephants, ostriches, &c., and other animals destined to the London Zoological Gardens. The heads and manners of the blacks have been scientifically examined by Dr. Broca, and a report on them will be read at the French Society for the Advancement of Science at Havre.

THE Bureau of the French Association to meet in Havre on the 23rd instant, consists of Prof. Broca, president; M. Kuhl-

mann, vice-president; M. Deherain, general secretary; M. Perrier, vice-secretary; M. Masson, treasurer. Most of the French railway companies give half-price tickets to persons going to the Association. The hotel proprietors in Havre guarantee a certain number of beds; furnished apartments have also been largely promised, and the berths in one of the Transatlantic Company's steamers have been placed gratuitously at the disposal of members.

AN interesting account of the recent falling of a mountain in Tarentaise, Savoy, causing disaster to two flourishing villages, has been communicated to the *Courrier des Alpes*, by M. Bérard. The phenomenon has been incorrectly reported as instantaneous, and the destructive effect complete, whereas the case is that of a mountain which for twenty days, without cessation, has been dismembering itself and literally falling night and day, into the valley below, filling it with piled-up blocks of stone, extinguishing all sounds by its incessant thunder, and covering the distant horizon with a thick cloud of yellowish dust. The entire mass comprised in the slope forms a mutilated cone 200 metres broad at the top and 600 at the base (the slope being about 50°); this is composed of blocks of hard schist lying close together, but no longer united; and it is united to the body of the mountain only by a vertical mass 40 to 50 m. thick, which already is fissured and shaken. Periods of repose occur lasting only a few seconds or a minute at most; then the movement recommences, and continues about 500 hours. Blocks of 40 cubic metres become displaced with no apparent cause, traverse the 1800 m. of descent in thirty seconds, leaping 400 or 500 m. at a time, and finally get dashed to pieces in the bed of the torrent, or launch their shattered fragments into the opposite forest, mowing down gigantic pines as if they were so many thistles. One such block was seen to strike a fine fir-tree before reaching the bridge between the villages; the tree was not simply broken or overthrown, but was crushed to dust (*volatilisé*); trunk and branches disappeared in the air like a burning match. Rocks are hurled together and broken into fragments that are thrown across the valley like swallows in a whirlwind; then follow showers of smaller fragments, and one hears the whistling sound of thousands of pebbles as they pass. M. Bérard reached the edge of the rock (2,460 m. high), on one of the sides of the falling cone, and ventured along it, obtaining a good view of the "terrifying" spectacle. He reaffirms his conviction that the phenomenon is inexplicable by any of the usual reasons that account for Alpine disturbances, such as penetration of water, or melting of snows, or inferior strata in motion; nor does the declivity of the slope explain it. His hypothesis is that some geological force is at work, of which the complex resultant acts obliquely to the axis of the mountain and almost parallel to its sides.

ACCORDING to M. Perrin, an eighth or a tenth portion of the French army is incapable of doing good service, in consequence of indistinct vision. M. Perrin formally proposes to remedy this by the adoption of spectacles. It is affirmed that spectacles are useful, if not indispensable, to 47 per cent. of the officers coming from the École Polytechnique.

FROM the Annual Report of the Council of the Royal Society of New South Wales, we gather that the membership at the beginning of the session of 1877 was 298, and that the Society is in a generally flourishing state. A considerable access of activity has occurred since the establishment of sections (nine) last year. The Council are hopeful of obtaining an annual endowment from the Government.

FOR want of space the gigantic Giffard captive balloon will not be constructed, as was anticipated, in the Paris Exhibition, but special ground will be granted as we announced a few months ago. The

spot selected is the Carrousel interior yard. The large space within the railings has been found sufficient, after special inspection by MM. Lefeul and Tetreau. The ministerial sanction is expected daily. M. Giffard is continuing his experiments on the production of hydrogen gas with continuous apparatus.

A BALLOON was sent up on Wednesday carrying an *aéronaut*, and elicited an interesting fact of aerial physics. The ground current was blowing gently from north-west, but higher up a south-west current was met by the *aéronaut*. The balloon was carried at a rate of 500 metres per minute to the north-east of Paris. In the night 8 millimetres of rain fell, the upper current having descended into contact with the ground.

A GERMAN Society for the Exploration of Palestine has recently been started by Dr. Zimmermann, Gymnasial Rector in Basle, along with Professors Kautsch and Socin, of Tübingen. Several other *savants* have joined it. The first quarterly number of the society's projected journal will appear shortly. The annual contribution to the society (10 marks) entitles one to receive the journal.

It is proposed in Stuttgart to erect a simple monument over the grave of Th. v. Heuglin, the well-known African traveller, recently deceased. The committee, at whose head is Prince Hermann of Saxe-Weimar, invite subscriptions.

THE additions to the Zoological Society's Gardens during the past week include a Bonnet Monkey (*Macacus radiatus*) from India, presented by Mr. C. L. Norman; three Chaplin Crows (*Corvus capellanus*) from Persia, presented by Dr. J. Huntley; a West African Python (*Python seba*) from West Africa, presented by Mr. Lionel Hart; a Red River Hog (*Potamocharus penicillatus*) from West Africa, received in exchange; a Barbary Ape (*Macacus inuus*) from North Africa, a Squirrel Monkey (*Saimaris sciurea*) from Guiana, deposited; a Military Maccaw (*Ara militaris*) from South America, purchased; ten Amherst pheasants (*Thaumalea amherstie*), three Temminck's Tragopans (*Cerionis temminckii*) bred in the Gardens.

SOCIETIES AND ACADEMIES

PARIS

Academy of Sciences, July 23.—M. Peligot in the chair.—The following papers were read:—New researches on electro-capillary phenomena, by M. Becquerel. One experiment is this: into a cracked tube containing nitrate of silver solution are introduced some very small fragments of carbon, and the tube is put in a vessel holding monosulphuret of sodium. Here the wall of the crack in contact with the inner solution is the negative pole of the electro-capillary couple, and that in contact with the outer solution the positive. Not only does the negative wall get covered with metallic silver, but the carbon fragments are also coated in proportion to their nearness to the crack. Each fragment acts like the crack. The action is like what occurs in a metallic circuit composed of several conductors.—Fixation of nitrogen on organic matter and formation of ozone under the influence of weak electric tensions, by M. Berthelot. He has given up metallic armatures, introducing the gas into an annular space between two vessels holding dilute sulphuric acid solution, which were connected with the battery poles. He mentions four reactions in which formation of ozone has thus been obtained. Again, to estimate fixation of nitrogen, a glass cylinder (with spherical calotte), internally covered with tin, externally half with water-moistened Berzelius paper, half with syrupy solution of dextrine, was placed on a lac-covered glass-plate and enclosed in a concentric glass cylinder with outer coating of tin; the tin armatures were connected with five Leclanché elements during several months, and fixation of nitrogen in paper and dextrine was demonstrated. He shows the application of such facts.—On an experiment by Dr. Bastian relating to urine neutralised by potash, by M. Pasteur. He describes a form of Dr. Bastian's experiment he has performed several times in presence of Academy members, and never got bacteria; the nature and treatment of the vessel is a salient point.—Tertiary strata of Hungary (continued), by MM. Hebert and Munier-Chalmas.—On the electric conductivity of trees, by M. Du Moncel. After referring to the local currents

and currents of polarisation got on applying to each tree two platinum electrodes 9 ctm. square, with an interval of 6'44 m., he gives a table of resistances for various species. The soft woods with spongy tissue and vigorous vegetation, such as elm (resistance 1,431 km.), chestnut (1,694), lime (1,988), poplar (2,090), are the best conductors. Among hard woods with slow vegetation, box had a resistance of 12,511 km. Birch (4,777) formed an exception.—Reply to M. Cosson's observations on the Saharan Sea, by M. D'Abbadie. M. de Lesseps corroborates M. D'Abbadie's arguments.—On the ophitic phenomenon in the Pyrenees and the Haute-Garonne, by M. Leymerie. Ophite proper and Iherzolite are two different but concomitant facies of an eruptive phenomenon characteristic of the Pyrenees, which may, as a whole, be termed *ophitic*. It is only met with in the lower part of slopes.—Reply to M. Naudin's observations on the interior sea of Sahara, by M. Roudaire.—On the degree of efficacy of sulphide of carbon as a means of destruction of phylloxera, by M. Boiteau.—On the grape-disease of the Narbonne vineyards, by M. Cornu.—On the Doryphora of potatoes, by M. Girard. He thinks sulpho-carbonate of potash would be useful against it; also that the fear of the beetle is exaggerated. Another chrysomelid (*Colaspidea atrum*), which attacks lucern in France, is very like the Colorado beetle in its ways, and it is successfully resisted.—On curves having the same principal normals, and on the surface formed by these normals, by M. Mannheim.—On the extension to space of two laws relative to plane curves, given by M. Chasles, by M. Fouret.—Influence of heat on magnetisation, by M. Gauguain. Certain magnetic bars of Sheffield steel heated and let cool are found at last to have changed in the sign of their magnetism.—On the magnetisation of circular plates where the isodynamic lines are concentric circumferences, by M. Dutet.—On the electrolysis of sulphuroic acid, by M. Gueront. This substance is decomposed like a salt.—Note on the determination of manganese, nickel, zinc, and lead, by M. Riche.—On the density of vapour of sulphhydrates of ammonia, by M. Horstmann.—On the nature of gases contained in the tissues of fruits, by M. Livache. He applied M. Schloesing's analytic method of immersion in ether (without lesion of tissue). In the tissues of healthy fruit the gases are a mixture of nitrogen and oxygen in the proportions found in air.—On the products of fermentation of the mud of Paris, by M. Maumené.—On the fecundation of the star-fish and sea-urchin, by M. Fol.—On the anatomy and the migrations of oxyurides, parasites of insects of the genus Blatta, by M. Ghaleb.—Influence of the sun and moon on magnetic and barometric variations, by M. Broun.—Some observations on the trajectory of hail during thunderstorms, by M. Ziegler. A hailstone cannot (he considers) attain a great weight except through a long course in dense air in the lower regions of the atmosphere, and he cites cases to prove that the trajectory of large hailstones forms a very acute angle with the ground.

CONTENTS

	PAGE
THE PHYSICAL BASIS OF MIND. By DOUGLAS A. SPALDING . . .	261
GORE'S "ELECTRO-METALLURGY" . . .	263
OUR BOOK SHELF:—	
Berg's "Enumeracion de las Plantas Europeas que se hallan como silvestres en la Provincia de Buenos Aires y en Patagonia" . . .	264
LETTERS TO THE EDITOR:—	
Optical Spectroscopy of the Red End of the Solar Spectrum.—Prof. PIAZZI SMYTH, F.R.S. . . .	264
The Cretaceous Flora of America.—J. S. NEWBERRY . . .	264
Meteorological Notes from Lisbon.—HENRY O. FORBES . . .	265
Fertilisation of Flowers by Insects.—HERMANN MÜLLER . . .	265
Local Museums.—J. ROMILLY ALLEN . . .	266
Proposed New Museum.—HENRY H. HOWORTH . . .	266
Adaptation of Plant Structure.—HENRY COLLETT . . .	267
Rattlesnakes in Wet Weather.—HUNTER NICHOLSON . . .	266
Meteors.—W. AINSLIE HOLLIS . . .	266
OUR ASTRONOMICAL COLUMN:—	
The Herschel Companion of Aldebaran . . .	266
The Third Comet of 1759 . . .	267
METEOROLOGICAL NOTES:—	
Sun-spots and Rainfall in Calcutta . . .	267
Winds of the South Atlantic . . .	267
Climate of Kossier, on the Red Sea . . .	268
Drought in Canada . . .	268
EARLY ALLUSIONS TO THE MAGNETIC NEEDLE . . .	268
EVOLUTION OF NERVES AND NERVO-SYSTEMS, II. By GEORGE J. ROMANES, M.A., F.L.S. (With Illustrations) . . .	269
THE NORWEGIAN ATLANTIC EXPLORING EXPEDITION . . .	271
MR. FROUDE'S NEW DYNAMOMETER (With Illustrations) . . .	272
THE COMMISSION OF THE FRENCH ACADEMY AND THE PASTEUR-BASTIAN EXPERIMENTS. By DR. H. CHARLTON BASTIAN, F.R.S. . . .	275
NOTES . . .	279
SOCIETIES AND ACADEMIES . . .	280

ERRATUM.—P. 238, col. 1, line 9 from top, for *Ekdemite* read *Ekdemite*.